The Life Cycle of Family Ownership: International Evidence

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ABSTRACT

We show that in countries with strong investor protection, developed financial markets, and active markets for corporate control, family firms evolve into widely held companies as they age. In countries with weak investor protection, less developed financial markets, and inactive markets for corporate control, family control is very persistent over time. While family control in high investor protection countries is concentrated in industries that have low investment opportunities and low merger and acquisition (M&A) activity, the same is not so in countries that have low investor protection, where the presence of family control in an industry is unrelated to investment opportunities and M&A activity. (*JEL* G32, G34)

> Parallel with the growth in the size of the industrial unit has come a dispersion in its ownership such that an important part of the wealth of individuals consists of interests in great enterprises of which no one individual owns a major part. A rapidly increasing proportion of wealth appears to be taking this form and there is much to indicate that the increase will continue.
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> Adolf A. Berle and Gardiner Means, *The Modern Corporation and Private Property*

There is a common view, which can be traced back to Berle and Means (1932) and Chandler (1977), that firms evolve over time from closely held, family-owned enterprises into managerially controlled, widely held corporations. In accordance with this "life cycle" view, family control should be negatively correlated with firm age.

There is some evidence to support this view. Helwege, Pirinsky, and Stulz (2007) find that shareholder concentration declines over time in U.S. firms following their initial public offerings (IPOs) and stocks that are more liquid tend to become widely held more quickly. Franks, Mayer, and Rossi (2009) show that in UK firms, shareholder concentration is diluted over time as a result of merger and acquisition (M&A) activity. In a comprehensive study of IPO firms in thirty-four countries, Foley and Greenwood (2010) find that shareholder concentration decreases faster in firms within countries in which there is stronger investor protection than in countries with weaker investor protection.

We contribute to this literature by analyzing the evolution, over time and across countries, of family control in listed and private firms.[1] Our focus is therefore on family control, rather than shareholder concentration, in private as well as public firms. Family control is important because it dominates many financial markets around the world. Focusing on private, as well as public, firms is important because the decision to go public is endogenous; hence, looking only at listed firms may give a biased measure of the evolution of family ownership in a country.

Our analysis is based on two separate datasets of nonfinancial European firms—one detailed panel drawn from the four largest economies (the United Kingdom, France, Germany, and Italy), which includes 4,654 firms, and one larger cross-section of twenty-seven European countries, which includes 27,684 firms. The novel features of these data are that they cover a large number of unlisted firms, and they include their ultimate owners and track ownership over time.

The proposition underlying our analysis is that the degree of investor protection, the development of financial markets, and the activity of the market for corporate control determine

[1] Most studies of family ownership have exclusively focused on listed firms. For example, La Porta, Lopez de Silanes, and Shleifer (1999) sample the twenty largest publicly traded companies in each of twenty-seven countries; Faccio and Lang (2002) consider 5,232 publicly traded companies in Western Europe; Villalonga and Amit (2006) focus on listed Fortune 500 corporations; and Anderson, Duru, and Reeb (2009) select the largest 2,000 U.S. industrial firms from Compustat. Exceptions are Bloom and Van Reenen (2007), who study management practices in 732 private manufacturing firms in the United States, France, Germany, and the United Kingdom; Almeida et al. (2011), who analyze ultimate ownership for both private and listed firms in Korean *chaebol* groups; and Giannetti (2003) studies the capital structure choices of 61,557 mostly private European firms and obtains direct shareholder data from Amadeus.

the prevalence and speed of the family control life cycle. We define the transition from a family firm to a widely held firm as happening whenever newly issued shares or sales of all (or part) of the family's existing shares cause family control to fall below a threshold of 25% of voting rights (held directly or via a control chain). We investigate three factors that might cause this to happen—investment opportunities, external financing requirements, and M&A activity—and exploit their industry-level differences. Specifically, if family firms become widely held through the channels of investment opportunities, external financing, and M&A activity, then we expect family control to be reduced or to disappear in industries in which the levels of investment opportunities, external financing, and M&A activity are high. Thus, we expect the incidence of family ownership to be related to industry-specific economic factors, namely, growth opportunities (Foley and Greenwood 2010), the need for external financing (Rajan and Zingales 1998), and M&A activity (Andrade, Mitchell, and Stafford 2001; Harford 2005).

We begin our analysis by focusing on four countries: France, Germany, Italy, and the United Kingdom. The United Kingdom can be regarded as having strong investor protection, high financial development, and active markets for corporate control; whereas France, Germany, and Italy are regarded as having weak investor protection, low financial development, and less active markets for corporate control. Keeping this in mind, we expect UK family firms to follow the ownership life cycle theory more closely than do their Continental European counterparts. Our results are consistent with this prediction. First, we find a strong negative correlation between family control and firm age in the United Kingdom—the older a firm, the less likely it is to be family controlled—whereas we find no such relation in the other three countries. If anything, older firms in France, Germany, and Italy are *more* likely to be family controlled.

Second, over a ten-year period, UK family firms have a significantly lower chance of remaining family controlled than do French, German, and Italian family firms.

As an illustration, consider a firm that was family controlled at incorporation. In the United Kingdom, if this firm survives, then it has just over a 75% probability of remaining a family firm forty years later and a 30% probability of remaining a family firm 150 years later. In Continental Europe if the firm survives, then it is expected to remain family controlled throughout time.

We also find that high investment opportunities and M&A activity lead to the disappearance of family firms in the United Kingdom but not in France, Germany, and Italy. UK family firms are concentrated in industries that have low investment opportunities, low needs for external financing, and low M&A activity, while in France, Germany, and Italy these three factors have no effect on family control. These results hold for both private and listed firms, and they persist after controlling for the use of control-enhancing mechanisms, such as dual class shares and pyramids (La Porta, Lopez-de-Silanes, and Shleifer 1999; Claessens, Djankov, and Lang 2002; Faccio and Lang 2002).

We then examine whether these results hold for a broader sample of twenty-seven countries that have greater variability of investor protection, financial development, and markets for corporate control. We find a negative correlation between family control and firm age in countries that have strong investor protection, high financial development, active markets for corporate control, and high aggregate scores of all three but no correlation in countries with low scores. We also observe that family control is lower in industries that have better investment opportunities, greater external dependence, and higher M&A activity in countries that have high

scores in investor protection, financial development, and corporate control but not in countries with low scores.

In summary, our evidence points to a life cycle of family control in countries with strong investor protection, developed financial markets, and active markets for corporate control but not in other countries. This dilution of control is stronger in sectors with better investment opportunities, more external financing requirements, and higher M&A activity.

One of the contributions of our article is to emphasize the role of mergers and acquisitions in the evolution of family ownership. We do so in three ways. First, at the industry level, we measure the opportunities for synergistic gains through mergers and acquisitions by the volume of industry M&A activity. Our prediction is that in industries with more M&A activity, family firms have a greater propensity to dilute their controlling stake by issuing new shares to buy other companies and to sell their control stake for a takeover premium. Consistent with this prediction, we find that in industries with more M&A activity, family control is less common. This effect is more pronounced in countries with less concentrated ownership, i.e., in the United Kingdom in our four-country analysis, and in countries with strong investor protection, high financial development and active markets for corporate control in our twenty-seven-country analysis. Second, at the country level, we argue that the evolution of family ownership is affected by the efficiency of the market for corporate control. As suggested by Manne (1965) and Jensen (1988), hostile takeovers are a powerful disciplining device for managers of widely held corporations. If families choose to sell their controlling stake in a firm, they will be able to do so at higher prices in countries in which widely held firms face lower agency costs because of more efficient markets for corporate control. In our twenty-seven–country analysis we find support for this prediction. Family control decreases with firm age *only* in countries with more active

markets for corporate control. Third, at the firm level, we make use of the more detailed information available for listed firms in order to understand the exact channel through which M&A activity affects the evolution of family ownership. As targets, family firms are more likely to be taken over in the United Kingdom than in Continental Europe. As acquirers, UK family firms are more likely to evolve into widely held firms as a result of stock-financed acquisitions.

Using the sample of listed firms, we also examine how family-controlled businesses become widely held. The evidence shows that primary issues are the single most important channel and are responsible for about half of the transitions from family control to widely held corporation. Secondary sales—in the form of block trades and open market sales—explain the remaining cases. Primary equity issues (to finance acquisitions) are particularly important in the United Kingdom, which suggests that the larger use of equity financing is an important explanation for the life cycle differences between UK and Continental European family firms. This is consistent with Foley and Greenwood (2010)'s evidence on firms just after the IPO, where ownership concentration declines over time in strong investor protection countries as a result of new equity issues, rather than secondary equity sales.

The structure of the remainder of the article is as follows. Section 1 reviews the existing literature and develops the testable hypotheses. Data and methodology are described in Section 2. The evolution of ownership over the decade of the panel data is analyzed in Section 3; Section 4 describes the larger cross-sectional results; and Section 5 concludes the article.

1. Hypotheses

In accordance with the life cycle view of family ownership (which can be traced back to Berle and Means 1932 and Chandler 1977), firms evolve over time from closely held, family-owned

enterprises into managerially-controlled, widely held corporations. Family control therefore should be negatively correlated with firm age.

There are several reasons for believing that the evolution of family into widely held firms significantly varies across countries. Founding families face the choice between forgoing control—by diluting their ownership through share issues or sales of their own equity stakes in order to grow as much as possible—and keeping control and using internal resources and debt to finance growth. Both options come with costs and benefits that are likely to vary across countries. The "law and finance" view argues that investor protection is a primary determinant of dispersion of ownership of firms (La Porta et al. 1998). The argument is that with weak investor protection, widely held companies are subject to severe agency conflicts between managers and shareholders, which large blockholders can overcome because of their greater incentives to monitor managers. Concentrated ownership (in the hands of families) naturally emerges as a solution to managerial agency conflicts in countries with weak investor protection. The law and finance view therefore predicts that family firms will be more persistent in countries with weak investor protection, and they will use internal funds and debt, rather than equity, to finance investment. Conversely, agency problems should be lower in widely held firms that are in strong investor protection countries, making families more willing to relinquish control in these regimes.[2] Foley and Greenwood's (2010) evidence on the ownership concentration in IPO firms is consistent with this view.

[2] A similar result emerges when considering the size of private benefits of control across countries. According to Zingales (1995) and Bebchuk (1999), controlling shareholders enjoy large private benefits of control and often at the expense of minority shareholders. Families may be reluctant to give up control, even when it is value increasing for other shareholders because of the private benefits they forgo. Hence, this theory predicts that, in line with the law

A second reason for why agency costs might also be lower in high investor protection countries is due to the market for corporate control. According to Manne (1965), Jensen (1988), and Scharfstein (1988) markets in corporate control—particularly in the form of hostile takeovers—diminish the agency problems that are created by the separation of ownership and control in firms with dispersed shareholders. They thereby raise the value that large shareholders derive from selling their controlling shareholdings to dispersed shareholders on stock markets. Brennan and Franks (1997) and Stoughton and Zechner (1998) argue that at the IPO stage firms choose to affect the structure of shareholdings in order to discourage or facilitate control by external investors. With lower agency control costs by external dispersed shareholders in the presence of markets for corporate control, the balance between the private benefit of retaining family and the value of selling it through public sales of equity shifts towards the latter. We therefore hypothesize that families are more likely to forgo control in countries in which there is an active market for corporate control. The ownership life cycle should therefore be more evident in countries with higher levels of hostile takeover activity.[3]

A third reason for differences across countries in the life cycle is the degree of financial development and the liquidity of financial markets. The argument in Helwege, Pirinsky, and Stulz (2007) borrows from the literature on price pressure in equity markets (see, e.g., Coval and Stafford 2007): blockholders are more reluctant to sell if the market is less liquid because of the

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and finance literature, concentrated ownership (in the hands of families) will be more likely to persist over time in countries with larger private benefits of control.

[3] Jensen (1988) and Scharfstein (1988) describe how hostile takeovers and the threat of hostile takeovers perform a disciplinary function on managers of widely held corporations alongside such considerations as economies of scale and scope that motivate other acquisitions and mergers. We therefore use the frequency of attempted hostile takeovers as our empirical proxy for the market for corporate control.

negative price-pressure that the sale may have on the stock price. They find that within the United States, stocks that are more liquid (as measured by high turnover) tend to become widely held more quickly. Foley and Greenwood (2010) find similar evidence for international IPOs. In accordance with this view, greater financial development leads to higher liquidity of financial markets and may consequently increase the incentives for controlling families to sell equity. We therefore expect that the life cycle view applies to family firms in countries that have greater financial development and liquid financial markets and applies less—or not at all—to family firms in countries that have low financial development.

These three reasons lead us to expect that *firm age is more negatively correlated with family control in countries that have stronger investor protection, more active markets for corporate control, and greater financial development than in other countries.*

We also wish to explore how family firms become nonfamily controlled. The controlling family faces a trade-off between keeping control and diluting or selling their controlling stake. For our analysis, we define a family firm as one in which a family controls at least 25% of voting rights, held directly or via a control chain whose links all exceed the 25% threshold, as we discuss in great detail in Section 2. A change from family firm into nonfamily firm therefore occurs whenever newly issued shares or selling all (or part) of the family's existing shares cause family control to fall below the 25% threshold. We investigate two main channels that can cause this to happen.

1) Investment opportunities: Better investment opportunities, keeping everything else fixed, create a need for external financing. If this involves the issuance of equity, taking advantage of investment opportunities will dilute the stake of the controlling family. The main

effect therefore of a positive shock to investment opportunities should be new equity issues and dilution of family ownership.

2) M&A activity: If a family firm faces an increase in M&A activity (such as an industry-specific merger wave), this can affect the family's trade-off in two ways—both of which work against family control. As a buyer, a family may issue shares in the family firm to finance acquisitions (issues can be secondary offerings or stock-financed acquisitions). As a seller, a family may use the opportunity to sell its existing shares for cash and reap takeover premia. The effect of a positive shock to M&A activity should therefore be new equity issues and block trades or both.

Country investor protection and industry investment opportunities should interact (as in Foley and Greenwood 2010): family stakes are diluted in firms that raise additional equity to finance investment opportunities and engage in M&A activity, in countries in which investor protection is strong, financial markets are developed, and the market for corporate control is active. We therefore predict that *in countries that have stronger investor protection, more active markets for corporate control, and greater financial development, family ownership will be more concentrated in industries with lower investment opportunities and with lower M&A activity.*

Finally, in accordance with the life cycle view of ownership, industry- and country-level determinants of family control should also interact with firm *age*. In industries that have higher investment opportunities and higher M&A activity, firm age should be more negatively correlated with family ownership if investor protection is strong, financial markets are developed, and the market for corporate control is active but not elsewhere. Econometrically this means that there should be a *triple* interaction of firm age, industry-level variables (investment opportunity and M&A activity), and country-level indicators (investor protection, financial

development, and market for corporate control). Therefore, our prediction is that *in countries that have stronger investor protection, more active markets for corporate control, and greater financial development, firm age will be more negatively correlated with family ownership in industries with greater investment opportunities and with higher M&A activity.*[4]

2. Data

We test the life cycle theory of the firm by using two approaches. The first is to study a smaller panel of firms that we trace over ten years from 1996 to 2006. The second is to analyze a large cross-section of firms in 2006.

For our first approach, we focus on France, Germany, Italy, and the United Kingdom. We collect ownership data for December 1996 and ownership changes over the period of 1996 to 2006. These include hand-collected and carefully cleaned ownership data that accurately trace the ownership evolution of all firms over the decade. The choice of these four countries is motivated by three considerations: 1) data on private and listed firms from Amadeus is limited to European firms; 2) within Europe, these are the four largest economies; and with 3) significant differences in investor protection, financial development, and the market for corporate control that allow us to test the predictions of the life cycle hypothesis. We collected two separate datasets: 1) the *TOP 4,000* sample is a selection of the 4,000 largest private or listed companies

[4] Since the proxies for investment opportunities and M&A activity are correlated with each other at the industry level, it is difficult to determine the relative significance of the different channels. Similarly, at the country level, the measures of investor protection, financial development, and activity of market for corporate control are strongly correlated: high investor protection is, e.g., associated with both high levels of financial development and active markets for corporate control. Hence, we also employ an aggregate indicator of the three country-level variables.

in France, Germany, Italy, and the United Kingdom and 2) the *LISTED FAMILY* sample includes all listed family-controlled firms in the four countries and is based on the dataset of Faccio and Lang (2002) (henceforth FL 2002). The added value of the *LISTED FAMILY* dataset is that we can identify *why* firms transition from family control into widely held firms and distinguish between those cases in which insiders sell out from those cases in which family control is diluted through equity issues.[5]

In our second approach, we use cross-sectional data for both private and listed firms with sales greater than €50 million for twenty-seven European countries in December 2006. This dataset contains 27,652 private and listed firms. We refer to this sample as the *ALL FIRM* sample. In what follows, we describe the three samples and their role in testing our hypotheses. We then introduce our country- and industry-level variables.

2.1 *TOP 4,000* sample

We collect data on the largest 1,000 firms in each of the four largest economies in Western Europe (France, Germany, Italy, and the United Kingdom) and use sales as our measure of size. We identify this set of companies from Amadeus, a pan-European financial database, as of December 1996. We use these 4,000 firms, which include both listed and private companies, to study the evolution of ownership over a ten-year period. The novel features of these data are that

[5] While we observe all control changes for the *TOP 4,000* sample, we do not generally observe the process, i.e., how the change occurs, as most firms in this sample are private. Private firms are not generally required to release information about the number of outstanding shares, insider sales, equity issues, mergers, or acquisitions. Because of this we typically cannot distinguish, e.g., whether a family sold its stake to outside investors or whether their controlling stake was diluted by equity investments of outsiders.

they cover a large number of unlisted firms and allow us to determine their ultimate owner and ownership changes over time.

From Amadeus, we obtain basic financial and ownership information for each of the 4,000 companies. We then check whether the company survived from 1996 until 2006 and record its ownership information in 2006 (if the firm survives). We classify a company's ultimate ownership in seven categories that depend upon if the company was widely held or held by a family, the state, another widely held company, several nonfamily shareholders (referred to as a "multiple block"), a foreign blockholder, or other shareholder types (referred to as "other"). The category "foreign blockholder" is broken down further into foreign family, foreign state, or foreign widely held company. "Other shareholder" is a residual category of ultimate owners that includes private equity and nonfamily-controlled foundations.

We define ultimate ownership as control of at least 25% of voting rights, where this stake is held directly or via a control chain whose links all exceed the 25% threshold. A widely held company is defined as one in which there is no ultimate owner who has a stake greater than 25%. We trace controlling stakes through all layers of ownership until we identify the ultimate owner and define the ultimate owner's controlling stake as the minimum voting rights along the control chain. We classify ultimate ownership and trace control for all firms in our sample for both 1996 and 2006.

The case of Yves Saint Laurent Parfums is a good example of changes of ultimate ownership in private firms. Yves Saint Laurent Parfums was originally owned by Yves Saint Laurent Groupe SCA, a publicly traded firm established by the French fashion designer Yves Saint Laurent, and his business partner, Pierre Bergé, who together were the controlling shareholders. In 1993, the founders announced a surprise merger, whereby they would relinquish

control and the YSL Groupe would be absorbed, through a share swap, into another publicly traded French company, Elf Sanofi SA. Elf Sanofi functioned as the cosmetics and pharmaceutical division of Elf Aquitaine, which was publicly traded and controlled by the French state. As a result, we record that, in 1996 Yves Saint Laurent Parfums had an ultimate controlling owner, i.e., the French State.

In 1999, Elf Sanofi sold the previously acquired beauty division to Artemis, a private holding company owned by French billionaire Francois Pinault. Pinault was, at that time, involved in a struggle with Bernard Arnault, another French billionaire, to acquire Gucci Group NV, the Italian fashion house. Pinault sold Yves Saint Laurent Parfums to Gucci Group and subsequently took control of Gucci after fending off the competing bid by Arnault's LVMH group. The acquisition vehicle was Pinault-Printemps-Redoute SA, a publicly traded holding company, which, in turn, was controlled by Pinault's private Artemis holding. By 2006, Yves Saint Laurent Parfums had changed its name to Groupe YSL Beauté, and it had a new ultimate owner, the Pinault family. Therefore, in our sample, in 2006 Yves Saint Laurent Parfums is classified as family controlled; and we can record that a change of control from state to family has happened sometime between 1996 and 2006.

We have devoted considerable efforts in order to ensure the accuracy of our data and manually trace ultimate owners for all 4,000 firms. To do this, we combine shareholding links reported in Amadeus with a large number of alternate sources, including *Wer gehoert zu Wem* for Germany, the *London Share Price Data Base* for the United Kingdom, *Consob* for Italy, and *DAFSA* for France. Most firms in the sample, particularly the privately owned ones, present complex challenges in data collection. As the example illustrates, tracing ultimate ownership

frequently produces a very different category of ownership from that of direct shareholdings. We describe how we build this ownership data in detail in the Data Appendix.[6]

2.2 *LISTED FAMILY* sample

Our second sample includes all listed family-controlled companies in France, Germany, Italy, and the United Kingdom. This sample is an extension of the *TOP 4,000* sample, as it has the same panel structure but includes all listed family firms, regardless of whether they are in the *TOP 4,000*. It allows us to perform additional tests that cannot be performed on the *TOP 4,000* sample.[7]

First, it allows us to control directly for family characteristics, such as board membership, and effects of generational change over time. Sufficient information on these variables is only available for listed firms. Second, it also allows us to control for the use of control-enhancing mechanisms, such as dual class shares, pyramids, and wedges, between cash flow and voting rights, which are frequently used by families (La Porta, Lopez-de-Silanes, and Shleifer 1999; Claessens, Djankov, and Lang 2002; Faccio and Lang 2002). Data about the use of such mechanisms are not available for private firms. Third, because of disclosure requirements, corporate events, such as takeovers, mergers, bankruptcies, equity issues, or delistings, are

[6] The Data Appendix is available on the authors' webpages.

[7] There is a limited overlap between the family firms in *the TOP 4000* sample and the *LISTED FAMILY* sample. In Italy 50% of the family firms in the *TOP 4000* are also listed. In France, the overlap is 25%, in Germany 16%, and in the United Kingdom only 10%. This suggests that the family listed firms are not representative of all family firms in these countries (with the possible exception of Italy): they are rather small, while the largest family firms are private. This also suggests that prior studies of family firms, which only consider listed firms, have tended to oversample small firms.

identifiable for listed but not private companies. Since these events may result in control changes, our focus on listed firms allows us to shed light on the precise mechanisms behind the evolution of family ownership over time.

Our starting point for constructing the sample is the FL (2002) data, which provide a snapshot of the ultimate ownership of all *listed* companies in thirteen European countries, taken around 1996. From the FL (2002) data we select all firms classified as family controlled in our four countries. We subject every firm to the same process to identify the ultimate owner as for the *TOP 4,000* sample. While each firm in this sample is, by definition, listed, it may be controlled by a private firm or a complex mix of private and listed firms. The main methodological improvement is that, compared with FL (2002), we have information on the ownership of private firms that are involved in the control chain of listed firms, while they do not. We find that this difference is significant, as we classify only 827 companies as unequivocally family controlled out of a total of 1,359 companies identified as family controlled in the original FL (2002) sample. More details on the comparison between the two datasets are provided in the Data Appendix.

2.3 *ALL FIRM* sample

The *ALL FIRM* sample is based on the December 2006 issue of Amadeus, which contains firm data from forty-one countries. The purpose of this sample is to test whether our results for the four countries (France, Germany, Italy, and the United Kingdom) carry over to a larger sample of countries, with greater variability of country-level characteristics, including investor protection, financial development, and markets for corporate control.

In the Amadeus database, the median firm is small—during fiscal year 2005, the median firm had twenty-five employees and sales of €2.79 million, with data available for 748,003 firms. Data quality is good for larger firms and generally decreases significantly with firm size; the median firm consequently has few data items available.

In order to obtain a sample for which most basic data are available, we extract only firms that meet the following requirements: the firm is active according to the database; sales, assets, operating profit, incorporation year, and industry (U.S. SIC code) are reported for the fiscal year 2005; sales are at least €50 million and assets are at least €25 million; and the firm is incorporated in a country covered by Djankov et al. (2008). We exclude firms in Fama-French industries with less than ten firms in total (and we check whether this affects our results). This leaves 27,684 firms, as our final sample, from twenty-seven countries.

One caveat of the *ALL FIRM* sample is that it includes medium-sized but not small-sized firms. In unreported regressions, we find that there is no evidence of an evolutionary path in small firms from family firm to widely held firm (below €50 million in sales), irrespective of the country in question.[8] This dataset has two disadvantages compared with the *TOP 4,000* and *LISTED FAMILY* samples. First, we rely on algorithms in order to classify firms into ownership categories and cannot manually verify the quality of the data, as we could for the other samples, because of the large number of observations. Second, it is a cross-section and cannot be extended back in time because the data are not available in Amadeus for earlier years. We describe in

[8] Possible explanations for this are: 1) small firms are less likely to raise external financing and to be subject to the market for corporate control; 2) the quality of data is too noisy in smaller companies, particularly with respect to the equity ownership; and 3) very small firms are likely to be run by families in all countries because of economies of scale.

detail within the Data Appendix how Amadeus traces control and how we process these data to identify all family-controlled firms.

2.4 Country characteristics

Our analysis uses several measures of country-specific characteristics, including investor protection, financial development, and the market for corporate control. We measure the quality of investor protection (*InvProtect*) by using the anti–self-dealing indicator produced by Djankov et al. (2008). As a measure of financial development (*FinDevelop*), we use the ratio of stock market capitalization to GDP in 2006. Finally, the activity level of the market for corporate control (*TakeoverMkt*) is measured by the number of attempted hostile takeovers as a percentage of traded companies between 2001 and 2006, which is computed by using SDC Platinum. The three measures are positively correlated but only the correlation coefficient between *FinDevelop* and *TakeoverMkt* (0.78) is significantly different from zero at the 1% level. We also combine these three measures into one aggregate indicator (*AI*), for which we normalize each variable by using the sample mean and standard deviation on the basis of twenty-seven country observations. *AI* is the equal-weighted sum of the three standardized indicators and reported for the twenty-seven countries in our samples in the Table A1 in the Appendix.[9]

Higher scores indicate stronger investor protection, greater financial development, and more active markets for corporate control. The aggregate *AI* score ranges from a minimum of -1.12 (in Ukraine) to a maximum of 2.24 (in the United Kingdom). There are significant

[9] The twenty-seven countries in our sample include Austria, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, the Netherlands, Norway, Poland, Portugal, Romania, Russia, Slovakia, Spain, Sweden, Switzerland, Ukraine, and the United Kingdom.

differences across countries, where the United Kingdom, Switzerland, and Ireland score very high, and Ukraine, Hungary, and Austria score very low. France, Germany, and Italy are close to the average (0.08, -0.22, and 0.05, respectively).[10]

2.5 Industry classification

As discussed in Section 1, we test the cross-sectional predictions of the life cycle hypothesis by using three industry-level variables: the average Tobin's Q in an industry, the dependence on external financing, and the industry-level volume of M&A activity.

We measure these variables for each of the forty-eight Fama-French industries from U.S. Compustat and SDC data. Investment opportunity is measured as the median Tobin's Q in the industry and as external dependence; M&A activity is measured by an indicator of industry merger waves. To construct the first two variables, we follow the methodology in Rajan and Zingales (1998). Tobin's Q is the ratio of market value of assets (book value of assets minus book value of equity plus market value of equity) to the book value of assets. External dependence is calculated as the ratio of capital expenditure that is not financed by retained earnings, using newly issued debt and equity. These measures are computed at the firm level by

[10] Our results do not depend on how we measure these country characteristics. We have experimented with other specifications and alternately have measured investor protection—by using the Djankov et al. (2008) anti-director rights index; financial development—by using the number of listed firms divided by population per country; and the activity of the market for corporate control—by using the percentage of listed companies targeted in a completed deal over a decade. We have also constructed sub-indices of investor protection, financial development, and the market for corporate control, which are weighted averages of these individual proxies, and we have produced corresponding alternative measures of the aggregate indicator *AI*. All of our results hold with these alternative specifications and are qualitatively unchanged. These results are available on request.

using U.S. data and aggregated at the forty-eight Fama-French industry level. We use data from 1987 to 1996 when we analyze ownership in 1996 (as done in the *TOP 4,000* sample) and data from 1997 to 2006 to analyze ownership in 2006 (as done in the *ALL FIRM* sample). To build our measure of M&A activity for each Fama-French industry, we scale the total number of completed acquisitions of listed companies in the United States (from SDC) by the total number of listed firms (from CRSP) over the respective decade. We then define a dummy variable that equals one for industries that have above-median M&A activity and zero otherwise. This is our final measure of M&A activity at the industry level and is akin to a merger wave indicator, as developed by Andrade, Mitchell, and Stafford (2001), Mitchell and Mulherin (1996), and Harford (2005). As in Rajan and Zingales (1998) and to avoid endogeneity concerns, we use U.S. data to construct these measures.[11]

3. Results for the Evolution of Ownership

In this section we test the predictions of the life cycle hypothesis for our panel dataset, which includes the *TOP 4,000* sample and the *LISTED FAMILY* sample. We first report detailed summary statistics on ultimate ownership for the cross-section of firms in each country in 1996 for the *TOP 4,000* sample. Then, we examine firm age, investment opportunities, and M&A activity as explanatory variables for family control, and we analyze the evolution of ownership

[11] We calculate pan-European industry measures of investment opportunities and M&A activity measures for all industries across all countries in the *ALL FIRM* sample, using financial data from Worldscope and M&A data from SDC Platinum. The correlation between U.S. and European investment opportunities using the twenty-seven countries is 0.80, significant at the 1% level, while the correlation for M&A activity is 0.34 and is significant at the 5% level. We cannot calculate external dependence for the European countries, as doing so requires items from cash flow statements that are available for U.S. firms from Compustat but not generally for non-U.S. firms.

over the decade by comparing survival rates as family firms to see what determines the continuation of family control in France, Germany, Italy, and the United Kingdom.

We then turn to the analysis of the *LISTED FAMILY* sample, which includes 827 listed family firms and explore, in greater detail, the evolution of ownership in family firms. For the *LISTED FAMILY* sample, we distinguish between takeovers, going private, block sales, and insolvencies in order to identify the precise channels through which the evolution of family control takes place. We also study how family characteristics, control-enhancing mechanisms, equity issues, and acquisitions affect the dynamics of firm ownership over time.

3.1 Descriptive statistics

In Table 1, we describe ultimate ownership of the largest 1,000 listed and unlisted companies in 1996 in each country. Panel A reports data on the full sample, which includes the largest 1,000 firms in each country, except for the few firms for which ultimate ownership cannot be identified. There are 923 firms in Germany, 970 in France, 980 in the United Kingdom, and 954 in Italy. Among these, family ownership is highest in Italy (53.1%) and lowest in the United Kingdom (21%). Conversely, the percentage of widely held companies is highest in the United Kingdom (27.4%) and lowest in Italy (5.6%). State ownership is significant and about 10% in all countries, except the United Kingdom, where it is 2%.[12] The fraction of companies that have a

[12] In the table we do not distinguish between domestic and foreign ownership, but we observe the nationality of all blockholders. In the United Kingdom, foreign blockholders control 22.4% of all firms, as compared with domestic blockholders, who control only 13.8%. Of the total of 22.4% of foreign ownership, 7.4% are controlled by foreign families. Thus, foreign families control about the same proportion of UK firms as domestic families, i.e., 7.3%. For the Continental countries the pattern is reversed. Domestic blockholders are much more prevalent than are foreign

widely held parent is also significant and varies between 24.4% in Italy and 46% in the United Kingdom.

TABLE 1 SHOULD GO ABOUT HERE

We then compare listed and private firms: 27.8% of UK companies are listed, while the proportion of listed companies is much lower in the other three countries: 14.5% in Germany, 13.6% in France, and 8.4% in Italy. In Panel B and as documented by Barca and Becht (2001), we find that listed firms in France, Germany, and Italy are much less likely to be widely held than are firms in the United Kingdom. As many as 85% of UK-listed companies are classified as widely held, compared with only 22% of German, 21% of French, and 3% of Italian companies. The large controlling blocks in countries are, like Italy, held mainly by families, where 66% of all listed companies have a family blockholder; the corresponding proportions are 49% in France and 34% in Germany. In the United Kingdom, families control only 8% of listed companies.

In Panel C, we describe the ownership of private firms. Particularly for the United Kingdom, we would expect the proportion of family-controlled firms to be much higher among private versus listed firms because both mechanisms of diluting family control—the raising of external finance and M&A activity—are likely to be less important in private firms. The results show that in the United Kingdom the proportion of family (private) firms is 26%, which is much lower than in Continental European countries. This number declines to less than 13% if only

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blockholders, and foreign families control far fewer firms in the three countries than in the United Kingdom: 2.6% of firms in Germany, 4.0% in France, and 2.7% in Italy.

domestic families are considered. In Continental Europe the proportion of family firms is strikingly similar to those for listed firms: 39% in Germany, 43% in France, and 52% in Italy.

Finally, a comparison of Panels B and C shows that in moving from listed to private, family ownership increases on average from 29.8% to 40.8%, which confirms that family firms are generally more likely to be private than listed, but the difference is modest. At the country level, however, with the exception of the United Kingdom, the proportion of family firms among private firms is close to or—in the case of France and Italy—actually lower than the proportion of family-owned firms among listed firms. The explanation is that, while absolute numbers of family firms among private firms are high, there are also significant numbers of widely held cooperatives (especially in France and Germany), state-owned firms (especially in Germany and Italy), firms with multiple blockholders, and firms controlled by nonfamily foundations, which depress the relative share of family firms.

3.2 Influence of firm age on family ownership

As discussed in the hypotheses section, a prediction of the life cycle hypothesis is that as firms age, they are less likely to be family controlled in countries that have stronger investor protection, greater financial development, and more active markets for corporate control (outsider countries). Given the differences along these dimensions between the United Kingdom and the three Continental European countries, we expect firm age to be negatively correlated with family ownership in the United Kingdom but not in Continental Europe.

Table 2 reports probit regressions on the 1996 cross-section of firms, where the dependent variable is a dummy variable that takes the value of one when a family controls the firm in 1996 and zero otherwise. The regressions control for Fama-French industry fixed effects

and country fixed effects. Coefficients are reported as marginal effects and standard errors are calculated by the delta method and clustered by country. We report marginal effects and their corresponding standard errors, rather than the estimated coefficients, because, as Powers (2005) shows, the interpretation of coefficient estimates of interaction terms and their standard errors can be misleading in binary regressions. As our probit regression is nonlinear, the marginal effects change with the values of the predictors, and we report the marginal effect for each coefficient that is evaluated at the average value of the predictor. The interpretation of the reported marginal effects is therefore that they indicate the average predicted change in the probability of a firm being family controlled in response to a unit change in one of the predictors (e.g., firm age), holding all other predictors constant.[13]

TABLE 2 SHOULD GO ABOUT HERE

The results in column 1 show that firm age is a significant determinant of the probability of family ownership. We measure firm age by the number of years (in hundreds) since incorporation. The results show that there is an important difference between the United Kingdom and Continental Europe. While in the United Kingdom older firms are less likely to be family controlled, there is no effect of age in Continental Europe. This is demonstrated by the fact that the interaction of the age variable with the UK dummy variable is negative and significant. To illustrate the economic effect, a ten-year increase in firm age in the United Kingdom (standard deviation of firm age is thirty-six) decreases the probability of family control

[13] Note that the number of observations in Table 2 is lower than the 3,827 firms with known ownership status in Table 1 because firm age, sales, or industry classification data are not available for all firms.

by 2%. Age on its own is positive but not a significant explanatory variable of the probability of family control in Continental Europe.[14]

We now investigate the two channels that can cause family firms to become nonfamily controlled by using the 1996 cross-section: investment opportunities and M&A activity. Better investment opportunities, keeping everything else fixed, create a need for external financing, which, if this takes the form of new equity issues, may dilute family control. The results shown in columns 2 and 3 reveal that this happens in the United Kingdom but not in Continental Europe. In column 2, the interaction between the UK dummy and our first measure of investment opportunities, external dependence, is negative and strongly significant. The result is weaker in column 3, where the UK dummy is interacted with our second measure of investment opportunities, Tobin's *Q*—the coefficient is negative but not statistically significant. Since ExtDep and Q are industry-level variables and the regressions include industry dummies, we can include the interaction of these variables with the UK dummy variable but not with the variables themselves.

If a family firm faces an increase in M&A activity (a merger wave), this activity is likely to lead to new equity issues in order to finance acquisitions or to sales of existing shares, which both lead to less family control. The results, in column 4, show that in the United Kingdom,

[14] In unreported tests, we find that UK firms are on average younger, and a two-sample Kolmogorov-Smirnov test rejects the equality of the distribution of age between the United Kingdom and the other three countries at the 1% level.

M&A activity is negatively correlated with family control. The coefficient of the interaction between the UK dummy and *M&A* is negative and strongly statistically significant.[15]

In summary, we find that investment opportunities and M&A activity are associated with dilution of family ownership in the United Kingdom but not in Continental Europe. In all specifications, listed firms are less likely to be family controlled, compared with private ones, which suggests that going public leads to a dilution of control in all countries and that smaller firms are more likely to be family controlled. This is consistent with the evidence in Helwege, Pirinsky, and Stulz (2007) and Foley and Greenwood (2010), who show that ownership concentration declines following IPOs in U.S. firms and in countries that have stronger investor protection, respectively. The result on firm size is consistent with the evidence in Holderness (2009), which emphasizes the importance of controlling for firm size in an analysis of ownership concentration.

3.3 Survival of family control

An alternative way to test the life cycle hypothesis is to study the evolution of family control over time, which, in our sample, means from 1996 to 2006. In Panel A, Table 3, we show that the proportion of companies in our 1996 sample that survived as independent entities in 2006 was 52% in Germany, 70% in France, 65% in the United Kingdom, and 63% in Italy. Of those that survived, 35% in Germany, 49% in France, 41% in the United Kingdom, and 35% in Italy remained in the top 1,000.

[15] In all regressions in Table 2, the coefficient on the interaction of age and the UK dummy is always negative and statistically different from zero at a 1% level. Since the probit regressions include industry and country fixed effects, this suggests that in the United Kingdom the life cycle channel operates independently of industry characteristics.

TABLE 3 SHOULD GO ABOUT HERE

Panel B reports ownership classification of firms that survive through to 2006 sorted by their ownership type in 1996.[16] For tractability, we aggregate ownership categories into family controlled, widely held, state controlled, other blockholders, and firms controlled by an unknown owner. The main conclusion is that, with the exception of family firms in the United Kingdom, there is considerable stability of ownership across time in all countries. Stability of control means that firms do not switch from one form of control to another over the decade.

The largest change in family ownership occurs in the United Kingdom. Of all family-controlled firms in 1996 that survived until 2006, only 50% remain family firms in 2006. Family ownership in the Continental European countries by comparison was much more stable than in the United Kingdom. By 2006, 75% of German family firms 66% of French family firms, and 77% of Italian family firms survive as family firms. Family control in Continental Europe therefore is, on average, about one-fifth more stable than in the United Kingdom.

In Table 4, we focus on family firms and study their survival as family firms over the period of 1996–2006 in a probit regression. This provides an alternative test of the life cycle hypothesis and a robustness check for the purely cross-sectional evidence that is reported in

[16] Note that, by construction, we can only observe ownership in 2006 for the 62.6% of firms that survive as legal entities until 2006. The most likely reason for nonsurvival is acquisition by another firm. We cannot obtain systematic evidence on the reasons for nonsurvival of the *TOP 4,000* sample, however, as this information is unavailable for most private firms. We have this information for the *LISTED FAMILY* sample.

Table 2. In these regressions, the dependent variable is a dummy for survivorship under the same ownership over the 1996–2006 decade, and the sample is restricted to family firms.[17]

TABLE 4 SHOULD GO ABOUT HERE

We find that the probability of survival as family firms decreases with age in the United Kingdom, while it increases in Continental Europe. The relevant coefficient is the interaction between the UK dummy and firm age, which in column 1 is negative and significantly different from zero. In columns 2 and 3, we show that in the United Kingdom the probability of survival as family firms is lower in industries that have higher investment opportunities (measured by higher *ExtDep* and higher *Q*). We also show in column 4, that the probability of survival is lower in sectors that have higher M&A activity in the United Kingdom. In unreported regressions we find that when external financing, investment opportunities and M&A activity are included on their own (without a UK interaction term) in place of the industry dummies then they have no explanatory power. This indicates that the relation of survival probabilities to investment opportunities and M&A activity is restricted to the United Kingdom.

A good example of how family firms in the United Kingdom evolve into widely held companies is J Sainsbury plc. The company was family controlled in 1996 and had become

[17] There are influences, of course, other than ownership changes on the continuity of family ownership. One such factor is bankruptcy. Claessens and Klapper (2005) show that the average annual bankruptcy rate is 2.6% in France, 1%in Germany, 0.5% in Italy, and 1.9% in the United Kingdom. The fact that bankruptcies are more common in France than in the United Kingdom suggests that differences in bankruptcy rates are unlikely to explain our findings. As further support for our claim, we later show in the article that for the *LISTED FAMILY* sample the family ownership life cycle is unaffected by exclusion of bankruptcy cases.

widely held by 2006 as a result of a reduction of the family stake. The firm was incorporated in 1922 and listed in 1973 as the largest UK IPO at the time. The founding family controlled over 30% of voting rights, as well as management, with a descendant of J Sainsbury as CEO from incorporation and until 1998 when the last family member (David Sainsbury) retired. After the IPO and as the company grew into one of the largest supermarket chains in the United Kingdom, the family gradually reduced their stake in the firm. The family currently owns 13.9% of the shares but can still, on occasion, exercise control over the company, which they did, e.g., in fending off a takeover from KKR in 2006.

The reasons for why families relinquish control are quite different in Continental Europe than in the United Kingdom. External events often appear to lie behind this. Consider, e.g., the case of Germany's Tiptel AG, a small producer of upmarket telephone equipment, which went public in 1973 with more than 50% of the votes controlled by the Schaefer family. Tiptel was family controlled in 1996 but became widely held by 2006. In the 1990s, the firm attempted but failed in the takeover of a German competitor. Afterwards and while it recovered, Tiptel failed to develop a strong market position and recorded its last positive earnings in 2001. Sales declined from €37 million in 2002 to €30 million in 2005. In the face of these difficulties, the founding family reduced its involvement in the company by decreasing their stake from 50% to 11.5% in 2006. The company later filed for bankruptcy (in March 2007).

Another example is Italy's Saffa SpA, a medium-sized chemical company, founded in 1904 and listed in 1942 on the Milan Stock Exchange. In 1986, it was part of the Bonomi group, which started in real estate and expanded into banking and chemicals. By the early 1990s, the group was fighting for survival as a result of poor financial decisions, and the Bonomi family was forced to sell most of its investments, including Saffa. In 1997, the company was merged

into Reno de Medici SpA. (another company operating in the chemical sector), and the family's stake declined from over 50% to less than 20%; subsequently, it was divested in full. This case is therefore another example in which the transition from family to widely held firm is the consequence of external constraints, rather than a voluntary decision on the part of the controlling family. This may explain why there is less evidence of the evolution of family firms being driven by investment opportunities in Continental Europe.

3.4 Listed family firms

In this section, we use our second *LISTED FAMILY* sample of companies, which consists of all listed family-controlled firms in 1996 in our four countries. The greater level of detail in this sample allows us to extend our analysis of the family ownership life cycle in three significant ways. First, we can now analyze how the life cycle depends on whether the controlling family directly descends from the firm's founder (founding family) or has acquired the business from the founding family (nonfounding family). Second, we can evaluate whether the life cycle depends on the use of control-enhancing mechanisms, such as dual class shares, pyramids, and wedges, between cash flow and voting rights. Data on such mechanisms are not available for private firms. Third, we can establish not only *if* but also *how* families lose control over time. In our previous *TOP 4,000* analysis, we identify all control changes over time, but we do not know *why* a family firm does not survive—whether it was through takeover, going private, dilution of control, or insolvency. For the *LISTED FAMILY* sample, we can explore these channels and, in

particular, in the case of family firms, we can identify if dilution of ownership occurs through primary equity issues or secondary equity sales.[18]

We begin by providing descriptive statistics about family characteristics and their use of control-enhancing mechanisms in Panel A, Table 5. Descendants of the firm's founder control almost 70% of the 827 listed firms in the sample in 1996. The differences across countries suggest that families (or their firms) are active as acquirers of other family companies in Germany (and in the rest of Continental Europe) but much less so in the United Kingdom. As an example, in July 2008, Schaeffler Group, a private company owned by the German Schaeffler family, acquired a majority stake in Continental AG, a large German tire manufacturer that was previously widely held, for about €12 billion. Such a transaction by a family-controlled firm would be almost inconceivable in the United Kingdom. In the United Kingdom, family firms are more often run by the founder than in France and Germany: *t*-tests of equality of means between the United Kingdom and Continental Europe (Table 5 reports *p*-values) show that Continental European firms are less likely to have a family CEO, family stakes are held more often by several family members, more control is exercised via pyramids, and there are lower cash-flow to voting rights ratios and higher family voting stakes in 1996.

TABLE 5 SHOULD GO ABOUT HERE

[18] Our analysis contributes to the literature on family succession. Previous results show that value is destroyed in the passing of active management from the founder to his or her descendants (Morck and Yeung 2003; Pérez-González 2006; Bloom and Van Reenen 2007; Villalonga and Amit 2006; Bennedsen et al. 2007; Bertrand et al. 2008) and that country-specific legal institutions, like inheritance laws and norms, influence the likelihood of succession (Ellul, Pagano, and Panunzi 2008).

We find that listed family firms are younger in the United Kingdom than in Continental Europe, which suggests that firms in Continental Europe go public later. However, differences in the decision to go public do not explain the entire variability across countries in family control. For instance, in Table 1, we find that family control is less common in the United Kingdom in both listed and private firms.

In Panel B, we consider control changes from 1996 to 2006. In 2006, a firm may still be in family control or may have been taken private by the controlling family. We classify these two outcomes together as "no change of control". Alternatively, the firm may have become widely held, insolvent, or may have been acquired. We classify these three outcomes together as a "change of control". We find that almost half of our companies have undergone a change of control, but there are substantial differences across countries: 68% in the United Kingdom compared with only 26% in Italy, 44% in Germany, and 39% in France. The differences confirm our life cycle results. Family firms in the United Kingdom are significantly more likely to experience a change of control than are their Continental European counterparts. The most common reason for family firms to change their form of ownership is a takeover. The second most common reason is for family firms to become widely held without a takeover: this happens in 30% of control changes in the United Kingdom but only about 10% of control changes in the other three countries.

What are the causes of the control changes in the latter cases? Do families lose control because of primary equity issues or because of secondary equity sold? Panel C breaks down secondary equity sales into open market purchases and negotiated sales of a block. The evidence shows that primary issues are the single most important channel and are responsible for about

half of the shifts from family control to widely held corporations; secondary sales in the form of block trades and open market sales explain the remaining cases.

In Panel D, we classify the ownership structure of the acquirer for each of the 257 firms that were taken over. Families are the most common acquirers across all four countries, followed by widely held firms, while a small percentage of firms are acquired by firms with other ownership types, like private equity investors, multiple blockholders, financial institutions, and state-owned companies. Interestingly, we do not find any statistical difference between UK and Continental European firms in this regard. While acquisitions therefore account for a high proportion of control changes in the United Kingdom, the move towards dispersed ownership does not result from a high incidence of dispersed ownership among acquiring firms. Many of the acquirers are foreign firms and foreign families, which suggests an integrated market for corporate control across the four countries.

In Panel E, we compare the financial performance of family firms across countries. For this comparison, we match our sample with financial data from Worldscope and with data about acquisitions from SDC Platinum. We calculate average profitability (return on assets (ROA)), sales, sales and asset growth, capital expenditures, leverage, and net equity issues from Worldscope data for all available years in the 1996-2006 period. We also construct two measures of acquisitions by the firms in the sample: *No. of acquisitions* is the number of private or listed companies acquired by the firm and *Percentage of stock-financed acquisitions* is the number of acquisitions financed with at least 50% of stock, value-weighted by deal size.

UK family firms are much smaller, significantly more profitable (ROA), grow faster, and are less highly levered than are Continental European companies. For acquisitions, the univariate comparison shows that, while numbers of acquisitions are similar across countries, UK firms

issue significantly more equity and finance a larger number of their acquisitions with equity issues. The evidence in Panel D therefore confirms that country differences in dilution over time are related to new equity issues.

We now turn to a multivariate analysis of control changes in family firms. In Table 6, the dependent variable is a dummy for whether or not a change of control happened during the 1996–2006 period for firms that are family controlled and listed in 1996. In column 1, we find that the probability of a change of control after the first generation is significantly higher in the United Kingdom than it is in Continental Europe. The coefficient for the interaction term between the UK dummy and a dummy variable for firms in control of the second generation or higher is positive and significant. As in the *TOP 4,000* sample, in column 2, we find that the probability of a change of control for family firms significantly increases with firm age in the United Kingdom but not in Continental Europe. To illustrate the economic effect, a ten-year increase in firm age in the United Kingdom increases the probability of a control change by four percentage points. Furthermore, changes of control are more likely if the family owns a small equity stake or if the controlling stake is divided between more family members. Founding family ownership matters, and we find that firms still controlled by the descendants of the founder in 1996 have a significantly lower probability of experiencing a subsequent change of control.

TABLE 6 SHOULD GO ABOUT HERE

We also find that if the family stake is divided between at least two family members, there is a higher likelihood of a control transfer over the following decade. This may be an

indication that dispersion of blocks among family members may lead to conflicts within the family over control and ultimately to a sale of the business itself. For instance, one family member may extract private benefits of control at the cost of the other family members and the minority shareholders. This is consistent with Bertrand et al.'s (2008) findings for Thai business groups, where dividing the family business among more descendants leads to lower subsequent performance.

Importantly, our result—that the life cycle hypothesis applies in the United Kingdom but not in Continental Europe—is robust to the inclusion of control-enhancing mechanisms, such as pyramids and wedges, between voting and cash-flow rights of the controlling family. Although pyramids and control wedges are used significantly more often in Continental Europe than in the United Kingdom, they do not, on their own, reduce the probability of a change of control from family to nonfamily in our sample.

Finally, we provide additional evidence on the precise mechanisms for the transition from family- to nonfamily-controlled firms in columns 3 and 4. As we have previously shown, both investment opportunities and M&A activity reduce the likelihood of family control. If M&A activity causes the loss of control, control changes could be related to situation in which the family makes equity-financed acquisitions. If investment opportunities cause the loss of control, control changes should be related to new equity issues in order to finance growth. We first focus on acquisitions in column 3, where we include acquisitions and their interaction with a UK dummy variable. The results confirm that acquisitions are related to control changes in the United Kingdom but not in Continental Europe. The interaction of the UK dummy with acquisitions is positive and significant. Acquisitions therefore do not appear to lead to loss of control in Continental Europe because they are rarely equity-financed.

Column 4 focuses on new equity issues in order to finance growth, where we include net equity issues as an explanatory variable. Again, we include an interaction term with a UK dummy variable. Since construction of the financial variables requires Worldscope coverage, the sample size drops to 630 observations. The results show that high primary equity issues are positively correlated with changes in control; therefore, they lower the likelihood of family control over time in the United Kingdom but not in Continental Europe.[19]

Overall, the results suggest that the life cycle differences between UK and Continental European family firms are primarily due to the larger use of primary equity issues (to finance acquisitions and other investments) by families in the United Kingdom. This is consistent with Foley and Greenwood's (2010) findings that in IPO firms reductions in shareholder concentration over time in strong investor protection countries are driven primarily by new equity issues, rather than secondary equity sales.

4. Cross-Sectional Evidence from Twenty-Seven Countries

In this section, we test the robustness of our results on a much larger number of countries by using the ownership structure of private and listed firms in the purely cross-sectional *ALL FIRM* dataset. First, we examine firm age as the determinant of family control. Second, we assess the explanatory power of investment opportunities and M&A activity as determinants of family control.

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[19] We re-run the regressions in columns (1) and (2) and exclude all sixty cases of default. This is a robustness check to determine whether the life cycle results may be influenced by country-specific differences in default rates of family firms. The (unreported) results show that this is not the case, as the interaction of the UK dummy with both *>=2nd generation* and *FirmAge* remains positive and significant at the 1% level.

Table A2 in the Appendix reports descriptive statistics for each country in 2006. The median sample firm is private, eighteen years old, has €122 million sales, has €83 million assets, and has 370 employees. The largest number of firms are from the United Kingdom (7,604), France (4,801), Italy (2,716), and Germany (2,189). The smallest number of firms are from Luxembourg (7), Latvia (13), Bulgaria (14), and Lithuania (16). Countries with the largest proportion of family firms are Lithuania (62.5%), Croatia (39.1%), and Greece (33.5%).

Table 7 replicates the analysis performed in Table 2 for the *TOP 4,000* sample. It reports probit regressions in which the dependent variable is the family control dummy variable, which controls for country and Fama-French industry fixed effects. Since ownership information is for 2006 (in this sample), we compute external dependence, Tobin's Q, and M&A activity by using data from the period of 1997–2006 (rather than the period of 1987–1996 that is used in the *TOP 4,000* sample).

TABLE 7 SHOULD GO ABOUT HERE

In column 1, we show that the coefficient on the product of (*Firm age*) x (*InvProtect)* is negative and statistically significant. We find a similar result when *Firm age* is interacted with *FinDevelop* in column 5, with *TakeoverMkt* in column 9, and the aggregate indicator *AI* in column 13. The effect is economically significant. An increase in firm age by twenty-seven years (which is one standard deviation) in a country, such as the United Kingdom (which has an *AI* score of 2.24) is associated with a 3% larger decline in the probability of family ownership than the same increase in firm age in Ukraine (which has an *AI* score of -1.12).

In columns 2, 6, 10, and 14, we keep the firm age interaction term and additionally test if family firms are more likely to survive in industries that have lower dependence on external finance. Since external dependence is an industry-level variable and the regression includes industry fixed effects, we include the interaction of external dependence with the four outsider indicators. As in Table 3, we again find a negative correlation between external dependence (*ExtDep*) and family ownership in outsider countries. The negative coefficient on the interaction of the four country-level indicators and *ExtDep* shows that family firms are less common in industries that are more dependent on external capital in countries with stronger investor protection, higher financial development, and more active markets for corporate control.

In columns 3, 7, 11, and 15, we test if family firms are more likely to survive in industries that have less M&A activity. As before, we find a negative correlation between M&A activity (*M&A Act*) and family ownership in countries that have higher investor protection (greater financial development, more active markets for corporate control). In columns 4, 8, 12, and 16, we test whether family firms are more likely to survive in industries that have lower investment opportunities. As before, we find a negative correlation between investment opportunities (*Q*) and family ownership in countries that have high scores for investor protection, financial development, and corporate control markets.[20]

As a test of whether the life cycle might be influenced by inheritance taxes, we consider the interaction of firm age and an inheritance tax variable that we construct from the maximum

[20] We re-run all regressions in Table 7 without industry fixed effects and add external dependence, Q and M&A activity, as industry-level variables, while keeping the interaction terms. The results (not reported) show that all three industry-level variables have negative coefficients and are significant at the 1% level or better, while coefficients of the interactions are unchanged.

payable inheritance tax in all twenty-seven countries of the study.[21] The coefficient of the interaction between firm age and inheritance tax is always negative but never significant, which suggests that inheritance taxes do not influence the life cycle of family ownership.

Overall, the results in Table 7 indicate that firms that are older and operate in sectors that have better investment opportunities and more M&A activity are less likely to be family controlled in countries that have stronger investor protection, higher financial development, and more active markets for corporate control.

Finally, we consider the *triple* interaction of firm age, industry-level investment opportunities (M&A activity), and country-level investor protection (financial development and market for corporate control), which is a test of the evolution of family firms over time and across industries. In industries with lower investment opportunities or lower M&A activity, firm age should be *more* negatively correlated with family ownership *if* investor protection is strong (financial markets are developed and the market for corporate control is active).

In Table 8, we add this triple interaction between firm age, one of the industry-level variables, and one of the country-level variables. For instance, in column 1, we take the specification estimated in column 2, Table 7 and add the interaction between *Investor protection*, *Firm age,* and *M&A activity*. The coefficient on the triple interaction term is negative and statistically different from zero at the 1% level. Hence, firms are less likely to stay family

[21] Tsoutsoura (2009), e.g., shows that inheritance tax in Greece is associated with less family firm investment. We collect tax rates from Deloitte's *International Tax and Business Guides* and assign a 0% rate for countries in which there is no inheritance tax or in which inheritance from parent to child is tax-exempt (Austria, the Czech Republic, Latvia, Portugal, Romania, Russia, Slovakia, Sweden, Switzerland, and Ukraine). Inheritance tax rates have a mean of 15.7% and standard deviation of 18%. Inheritance tax rates are positively correlated with the *AI* index, with a correlation coefficient of 0.39, and are significant at the 5% level.

controlled as they age in countries that have stronger investor protection and in industries that have higher M&A activity. We estimate the same specifications for all combinations of country-level indicators and industry characteristics. In all cases, we find that the coefficient on the triple interaction is negative and statistically significant. Hence, we find strong support for the hypothesis that investment opportunities and M&A activity are the channels through which family ownership evolves over time in high investor protection systems.[22]

TABLE 8 SHOULD GO ABOUT HERE

5. Conclusion

The striking conclusion to emerge from this article is that, while the life cycle theory is one of the most widely cited "stylized facts" about firms, it receives little empirical support from international evidence. It applies in some countries but not in most. Basically, family firms evolve into widely held companies as they age only in countries that have strong investor protection, well-developed financial markets, and active markets for corporate control. In

[22] As an additional robustness check, we re-run all regressions in Table 8 but weighting all countries equally, i.e., we weight each firm observation by the inverse of the number of firms in that country. This allows us to address the question of whether the larger countries in the sample influence our results. Reweighting, however, also increases noise if the number of firms in a country is inversely related to the quality of the coverage by Amadeus, which is likely to be the case. To decrease noise, we drop from this analysis seven countries with less than a hundred firms in total. Even when equally weighting all countries, we find that all the interaction coefficients shown in Table 8 keep their negative sign and confirm the previous life cycle results of family ownership. Out of the twelve coefficients, eight interactions remain significant at the 1% level or better, the (*AI*) x (*FirmAge*) x (*M&A*) interaction remains significant at the 5% level, and the three interactions with investor protection become insignificant.

countries with weak investor protection, less developed financial markets, and inactive markets for corporate control, family control is very persistent over time. This is true of both private and public firms. In countries that have strong investor protection, well-developed financial markets, and active markets for corporate control, family control is concentrated in industries in which low investment opportunities, low M&A activity, and new equity issues are a primary source of dilution of family ownership. This is not so in countries that have low investor protection, where family control in an industry is unrelated to investment opportunities and M&A.

The emergence of these insights reflects three features of our analysis. First, we use data on private, as well as listed, companies. Since private firms account for more than 80% of the top 1,000 companies in France, Germany, and Italy, their exclusion from previous analyses has been a serious omission. Second, we trace ownership through its intermediate layers to its ultimate source, even in cases in which it is held via private firms. The previous attribution of ownership in these cases to concentrated family holdings has been found to be frequently incorrect. Third, and perhaps most significant, we supplement cross-section analyses of the nature of ownership at a particular point in time in a large number of countries with more detailed panels that allow us to trace evolution of control over time.

The article does not address the welfare or efficiency properties associated with the different patterns of evolution. Whether strong investor protection, well-developed financial systems, and active markets in corporate control are beneficial in providing families with portfolio diversification and financing opportunities that do not exist elsewhere or whether dilution of control is imposed on them in the absence of alternative financing or control arrangements remains an open question. The coexistence of different institutional arrangements points to possible multiple equilibria sustained by a complementarity between financial

institutions and corporate ownership. In some economies, family businesses may be so influential that they are able to shape institutions and overcome financial constraints without giving up control. In those economies, bank finance and control vehicles may emerge to promote the continuation of family ownership, whereas, in other economies in which family businesses are less influential, liquid markets in equity financing and control develop instead and encourage the dispersion of ownership and control. These differences in ownership may, in turn, be associated with different types of productive activities, rather than the economic dominance of one form over another.

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Table 1
Ultimate control of listed versus private firms

This table reports statistics for the largest 1,000 firms by sales in France, Germany, Italy, and the United Kingdom in 1996 (the *TOP 4,000* sample). Panel A reports all firms with available ownership data. Panels B and C describe the ownership structure of listed firms and private firms, respectively.

Panel A: Ownership status of largest 1,000 firms					
Ownership types (%)	Germany	France	UK	Italy	Total
Multiple blocks	4.4	2.0	0.3	2.0	2.1
Family	38.6	43.8	21.0	53.1	39.0
Other	2.1	3.2	2.8	2.2	2.6
State	13.5	10.1	2.0	12.7	9.5
Widely held	9.9	8.9	27.4	5.6	13.0
Widely held parent	31.5	32.1	46.4	24.4	33.7
Total number of firms with ownership data	923	970	980	954	3,827
Unclassified firms	77	30	20	46	173
Panel B: Listed firms					
Ownership types (%)	Germany	France	UK	Italy	Total
Multiple blocks	4.5	0.8	0.4	3.8	1.8
Family	34.3	48.5	7.7	66.3	29.8
Other	1.5	8.3	1.5	0.0	2.8
State	12.7	8.3	0.4	18.8	7.1
Widely held	21.6	20.5	85.3	2.5	46.9
Widely held parent	25.4	13.6	4.8	8.7	11.7
Total number of firms	134	132	272	80	618
Panel C: Private firms					
Ownership types (%)	Germany	France	UK	Italy	Total
Multiple blocks	4.4	2.1	0.3	1.8	2.2
Family	39.3	43.1	26.1	51.9	40.8
Other	2.2	2.4	3.2	2.4	2.5
State	13.7	10.4	2.7	12.1	10.0
Widely held	7.9	7.0	5.2	5.8	6.5
Widely held parent	32.6	35.0	62.4	25.9	38.0
Total number of firms	789	838	708	874	3,209

Table 2
Testing the life cycle hypothesis

This table reports probit regression results. The dependent variable is whether (1) or not (0) a firm is ultimately family controlled. It uses the *TOP 4,000* sample, i.e., the largest 1,000 private and listed firms by sales in France, Germany, Italy, and the United Kingdom in 1996. Firms in Fama-French industries with less than ten firms are excluded. Coefficients are reported as marginal effects. *FirmAge* is measured in hundreds of years. *ExtDep* is industry-level external financial dependence, following Rajan and Zingales (1998). *M&A* is industry-level merger activity and equals one if the number of successful takeovers (from SDC) scaled by number of listed firms (NYSE, AMEX, and NASDAQ from CRSP) in a Fama-French industry is above the sample median and is zero otherwise. *Q* is the industry-level market-to-book ratio. *ExtDep, M&A,* and *Q* are based on all U.S. Compustat firms (1987–1996). Foreign control indicates a firm that is ultimately controlled by a foreign owner. All regressions include industry and country fixed effects, with Germany as the base case. Robust standard errors of the marginal effects are calculated by delta method and clustered by country. *, **, and *** indicate a coefficient significantly different from zero at the 10%, 5%, and 1% confidence level, respectively.

Dependent variable	Firm is family controlled (1) or not (0)			
Sample	All firms			
	(1)	(2)	(3)	(4)
Interaction variable	*FirmAge*	*ExtDep*	*Q*	*M&A*
FirmAge	0.055	0.059	0.059	0.057
	(0.046)	(0.044)	(0.044)	(0.044)
(UK) x (*FirmAge*)	-0.254***	-0.268***	-0.267***	-0.273***
	(0.040)	(0.035)	(0.034)	(0.035)
(UK) x (*ExtDep*)		-0.040*		
		(0.022)		
(UK) x (*Q*)			-0.112	
			(0.128)	
(UK) x (*M&A*)				-0.129***
				(0.028)
Listed firm	-0.106*	-0.118**	-0.118**	-0.116**
	(0.059)	(0.057)	(0.057)	(0.057)
Foreign control	-0.19	-0.195	-0.194	-0.198
	(0.122)	(0.122)	(0.121)	(0.121)
Log (sales)	-0.039***	-0.037***	-0.037***	-0.037***
	(0.010)	(0.007)	(0.007)	(0.008)
Industry fixed effects	YES	YES	YES	YES
Country fixed effects	YES	YES	YES	YES
Observations	3,732	3,371	3,387	3,384
Pseudo R^2	0.142	0.140	0.145	0.142

Table 3
Firm survival and transition of ultimate ownership

This table reports survival and ownership transition statistics for the largest 1,000 firms by sales in France, Germany, Italy, and the United Kingdom in 1996 (the *TOP 4,000* sample). Firms with unknown ownership in 1996 are excluded; therefore, the number of firms per country is lower than 1,000. Panel A reports survival rates of firms as of 2006. Panel B reports the numbers of disappearing and surviving firms by ownership type as well as ultimate ownership changes.

Panel A: Survival of the firm

	Germany	France	UK	Italy	Total
Number of firms in the TOP 1,000 in 1996	923	970	980	954	3,827
Survival as entity:					
Firm is among TOP 1,000 in 1996 and still exists as an entity in 2006 (%)	52.3	70.2	64.6	62.8	62.6
Survival at the TOP:					
Firm is among TOP 1,000 in 1996 and still exists as an entity among the TOP 1,000 in 2006 (%)	34.7	48.6	40.8	35.4	40.0

Panel B: Ownership transition

	Number of firms in 1996	Number of firms surviving to 2006	If survived: Owner type in 2006				
			Family (%)	Widely held (%)	State (%)	Mult. blocks, widely held parent, or other blockh. (%)	Controlled by unknown owner (%)
Firms controlled by family in 1996							
Germany	356	182	68	9	0	14	9
France	425	285	65	7	2	26	0
UK	206	138	50	8	1	41	0
Italy	507	335	72	5	2	15	6
Firms widely held in 1996							
Germany	91	56	9	52	2	34	4
France	86	72	10	71	0	15	4
UK	269	172	6	62	1	31	0
Italy	53	37	14	78	0	5	3
Firms controlled by state in 1996							
Germany	125	78	9	9	50	29	3
France	98	80	14	5	51	28	3
UK	20	14	21	0	50	29	0
Italy	121	67	27	6	61	1	4
Firms controlled by multiple blocks, widely held parent, or other blockholders in 1996							
Germany	351	168	17	3	3	74	3
France	361	242	20	3	3	73	1
UK	485	310	17	2	2	79	0
Italy	273	158	16	1	4	74	5

Table 4
Survival of family control

This table reports probit regression results. The dependent variable is whether (1) or not (0) a family firm survives over the decade of 1996–2006 as a family-controlled firm. It uses the *TOP 4,000* sample, i.e., the largest 1,000 private and listed firms by sales in the France, Germany, Italy, and the United Kingdom in 1996. Firms in Fama-French industries with less than ten firms are excluded. Coefficients are reported as marginal effects. All variables are as defined in Table 2. All regressions include industry and country fixed effects, with Germany as the base case. Robust standard errors of the marginal effects are calculated by delta method and clustered by country. *, **, and *** indicate a coefficient significantly different from zero at the 10%, 5%, and 1% confidence level, respectively.

Dependent variable	Firm survives the decade (1) or not (0)			
Sample	Family firms			
	(1)	(2)	(3)	(4)
Interaction variable	*FirmAge*	*ExtDep*	*Q*	*M&A*
FirmAge	0.107***	0.121***	0.120***	0.119***
	(0.021)	(0.010)	(0.010)	(0.010)
(UK) x (*FirmAge*)	-0.158***	-0.136***	-0.136***	-0.147***
	(0.018)	(0.013)	(0.011)	(0.016)
(UK) x (*ExtDep*)		-0.150***		
		(0.006)		
(UK) x (*Q*)			-0.453***	
			(0.074)	
(UK) x (*M&A*)				-0.156***
				(0.022)
Listed firm	0.109	0.106	0.110	0.097
	(0.076)	(0.075)	(0.075)	(0.082)
Foreign control	-0.021	-0.001	0.002	-0.007
	(0.022)	(0.026)	(0.026)	(0.028)
Log (sales)	0.005	0.007	0.008	0.007
	(0.011)	(0.012)	(0.011)	(0.010)
Industry fixed effects	YES	YES	YES	YES
Country fixed effects	YES	YES	YES	YES
Observations	1,359	1,280	1,280	1,289
Pseudo R^2	0.058	0.066	0.066	0.066

Table 5
Listed family-controlled firms

This table is based on the population of 827 listed family-controlled firms in France, Germany, Italy, and the United Kingdom in December 1996, i.e., the *LISTED FAMILY* sample. In Panel A, summary statistics are country averages, unless otherwise noted. *FirmAge* is measured in years. Panel B reports if and how the status of the firm changed from being a listed family-controlled firm in 1996 over the decade. "No change (N)" indicates the firm is still a listed firm controlled by the same family as in 1996. "Went private" indicates the firm delisted. "Widely held in 2006 (A)" indicates the family no longer holds a controlling stake in 2006, but the firm was not subject to a takeover. "Takeover (B)" indicates the firm was subject to a takeover. "Default (C)" indicates the firm went into liquidation. "Unknown status" indicates that the firm's ultimate owner in 2006 or the exact reasons for its disappearance over the decade are unknown. Panel C provides a decomposition of all firms that become widely held. Panel D provides a classification of the ownership of the acquirer for all firms that are taken over. Panel E reports financial data and transactions from 1996 to 2006 (or last listed year if earlier). ROA, sales, sales growth, asset growth, capital expenditures, leverage, and net equity issues use Worldscope data and are first averaged per firm and then per country. No. *of acquisitions* is number of private or listed companies acquired by the firm from SDC Platinum. *Percentage of stock-financed acquisitions* is the number of at least 50% stock-financed acquisitions scaled by all acquisitions for which acquisition currency is reported in SDC and is value-weighted by deal size.

Panel A: Summary statistics for listed family firms in 1996						
	Germany	France	Italy	UK	Total	UK vs. Non-UK (*p*-value)
Founding family still in control (%)	49.0	72.3	60.4	91.2	69.7	.000
CEO is a family member (%)	59.0	80.8	74.5	81.1	74.1	.001
Control divided within family (%)	63.4	81.0	61.3	47.0	58.5	.000
Dual class shares (%)	23.7	0.8	43.4	16.6	17.4	.710
Controlled via pyramids (%)	15.8	13.1	22.6	2.3	12.3	.000
2nd or higher generation in control (%)	84.2	55.4	42.5	43.8	59.5	.000
Ratio of cash flow to voting rights (%)	88.2	98.1	73.6	96.1	91.4	.000
Voting rights (%)	68.1	62.1	58.7	41.8	57.9	.000
FirmAge (yrs.)	91.5	71.7	48.6	38.6	66.2	.000
Panel B: Evolution of ownership from 1996 to 2006						
No change (N)	109	119	56	54	338	
Went private	18	34	22	16	90	
Widely held in 2006 (A)	9	10	3	44	66	
Takeover (B)	75	82	16	84	257	
Default (C)	26	6	9	19	60	
Unknown status	18	0	0	0	18	
Total	253	251	106	217	827	
Frequency control changes (A + B + C) (%)	43.5	39.0	26.4	67.7	46.3	.000
Panel C: Decomposition of family firms which become widely held						
Loss of control via (%)						
Primary equity issue	22.2	60.0	100.0	52.3	52.0	.863
secondary open market sale	66.6	30.0	0.0	27.3	31.8	.269
secondary negotiated block sale	11.1	10.0	0.0	20.5	16.7	.249
Total number (A)	9	10	3	44	66	
Panel D: Decomposition of acquirers of family firms that are taken over						
Family (%)	44.0	63.4	62.5	46.4	52.1	.203
Widely held firm (%)	28.0	29.3	37.5	34.5	31.1	.414
Other (%)	28.0	7.3	0.0	19.1	16.8	.490
Total number (B)	75	82	16	84	257	
Panel E: Firm financials 1996–2006						
ROA (%)	1.7	4.9	2.6	5.9	3.8	.000
Sales (US$ billion)	1.1	1.2	1.5	0.4	1.0	.000
Sales growth (%)	7.5	10.4	9.2	12.4	9.7	.006
Asset growth (%)	6.9	9.3	8.3	14.2	9.6	.000
Capex/assets (%)	7.2	6.0	4.7	6.6	6.4	.198
Leverage (%)	24.9	22.5	25.9	17.1	22.4	.000
Net equity issues/sales (%)	1.2	1.9	2.8	4.3	2.6	.000
No. of acquisitions	2.3	2.7	2.0	2.4	2.4	.946
Percentage of stock-financed acquisitions	3.5	4.2	3.5	10.7	6.7	.000

Table 6
Ownership changes in listed family firms

The table reports probit regression results for the *LISTED FAMILY* sample, i.e., all listed firms in 1996 in France, Germany, Italy, and the United Kingdom that in 1996 were family controlled. The dependent variable is whether (1) or not (0) the firm experiences a change of control during the period 1996 to 2006. A change of control is defined as a case in which a family-controlled firm in 1996 is widely held in 2006 or was taken over or defaulted between 1996 and 2006. High equity issues is a dummy for whether (1) or not (0) equity issues during 1996–2006 are above the sample median. Control wedge is a dummy for whether (1) or not (0) the family's voting rights differ from its cash flow rights. All other variables are from Table 5. Robust standard errors of the marginal effects are calculated by delta method and clustered by country.*, **, and *** indicate a coefficient significantly different from zero at the 10%, 5%, and 1% confidence level, respectively.

Dependent variable:	Change of control from 1996 to 2006			
Sample:	All firms	Age known	All firms	Worldscope
	(1)	(2)	(3)	(4)
Pyramids	-0.038	0.014	-0.040	-0.051*
	(0.029)	(0.057)	(0.028)	(0.029)
Control wedge	-0.02	-0.014	-0.022	-0.023
	(0.040)	(0.038)	(0.040)	(0.031)
Founding family in control in 1996	-0.298***	-0.342***	-0.297***	-0.318***
	(0.073)	(0.087)	(0.071)	(0.076)
Control divided within family	0.079**	0.064	0.080**	0.117***
	(0.035)	(0.063)	(0.036)	(0.032)
Voting rights (%)	-0.004*	-0.003	-0.004*	-0.003
	(0.002)	(0.002)	(0.002)	(0.003)
CEO is family member	0.001	-0.038	0.001	0.013
	(0.074)	(0.087)	(0.072)	(0.071)
>=2nd generation	-0.002		-0.003	-0.017
	(0.046)		(0.044)	(0.039)
(UK) x (>=2nd generation)	0.125***		0.140***	0.097***
	(0.045)		(0.043)	(0.026)
FirmAge		-0.001**		
		(0.001)		
(UK) x (*FirmAge*)		0.004***		
		(0.002)		
No. of acquisitions			-0.001	
			(0.001)	
(UK) x (No. of acquisitions)			0.021***	
			(0.001)	
High equity issues				-0.049
				(0.041)
(UK) x (High equity issues)				0.101**
				(0.043)
Industry and country fixed effects	YES	YES	YES	YES
Observations	741	443	741	630
Pseudo R^2	0.150	0.160	0.154	0.165

Table 7
Testing the life cycle hypothesis in twenty-seven countries

This table reports results for the *ALL FIRM* sample of private and listed firms described in the Data Appendix. It reports probit regressions. The dependent variable is whether (1) or not (0) a firm is family controlled. Regressions include double interaction terms of country-level variables (*InvProtect*, *FinDevelop*, *TakeoverMkt*, and *AI*) with firm-level (*FirmAge*) and industry-level variables (*M&A, ExtDep,* and *Q*). *InvProtect* is the anti–self-dealing indicator by Djankov et al. (2008). *FinDevelop* is the ratio of total stock market capitalization to GDP in 2006. *TakeoverMkt* is the number of attempted hostile takeovers as a percentage of traded companies between 2001 and 2006. *InvProtect*, *FinDevelop,* and *TakeoverMkt* are standardized to be standard normal and *AI* is the equal-weighted average of the three measures. *ExtDep, M&A,* and *Q* are as defined in Table 4 and calculated for U.S. data (1997–2006). All regressions include control variables (*FirmAge*, Size, and Listed) and country and industry fixed effects. Coefficients are reported as marginal effects. Robust standard errors of marginal effects are calculated by delta method and clustered by country. *, **, and *** indicate coefficient significantly different from zero at the 10%, 5%, and 1% confidence level, respectively. The number of observations is 27,684.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
(***InvProtect***) x (*FirmAge*)	-0.029*** [0.005]	-0.028*** [0.005]	-0.028*** [0.005]	-0.029*** [0.005]												
... x (*ExtDep*)		-0.005*** [0.002]														
... x (*M&A*)			-0.008** [0.004]													
... x (*Q*)				-0.058*** [0.007]												
(***FinDevelop***) x (*FirmAge*)					-0.037* [0.019]	-0.035* [0.019]	-0.036* [0.019]	-0.038* [0.020]								
... x (*ExtDep*)						-0.010*** [0.004]										
... x (*M&A*)							-0.016*** [0.006]									
... x (*Q*)								-0.088*** [0.027]								
(***TakeoverMkt***) x (*FirmAge*)									-0.035*** [0.013]	-0.034** [0.013]	-0.034** [0.013]	-0.035*** [0.014]				
... x (*ExtDep*)										-0.004 [0.003]						
... x (*M&A*)											-0.011* [0.006]					
... x (*Q*)												-0.070*** [0.013]				
(AI) x (*FirmAge*)													-0.035*** [0.013]	-0.037*** [0.009]	-0.037*** [0.009]	-0.039*** [0.009]
... x (*ExtDep*)														-0.007*** [0.002]		
... x (*M&A*)															-0.012** [0.005]	
... x (*Q*)																-0.077*** [0.010]
Pseudo R^2	0.103	0.103	0.103	0.104	0.102	0.102	0.103	0.103	0.102	0.103	0.103	0.103	0.103	0.103	0.103	0.104

Table 8
Firm age, external financing, M&A activity, and investment opportunities

This table reports results for the *ALL FIRM* sample of private and listed firms described in the Data Appendix. It reports probit regressions. The dependent variable is whether (1) or not (0) a firm is family controlled. Regressions include triple interactions of country-level variables (*InvProtect*, *FinDevelop*, *TakeoverMkt*, and *AI*) and industry-level variables (*M&A, ExtDep,* and *Q*) with the firm-level *Age* variable, as well as all double interactions. All regressions include control variables (*FirmAge*, Size, and Listed) and country and industry fixed effects. Coefficients are reported as marginal effects. Robust standard errors of the marginal effects are calculated by delta method and clustered by country. *, **, and *** indicate a coefficient significantly different from zero at the 10%, 5%, and 1% confidence level, respectively. The number of observations is 27,684.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(InvProtect)x***(***FirmAge*)x(*M&A*)	-0.020***											
	[0.004]											
…x(*FirmAge*)x(*ExtDep*)		-0.018**										
		[0.008]										
… x(*FirmAge*)x(*Q*)			-0.072**									
			[0.033]									
(FinDevelop)x(*Age*)x(*M&A*)				-0.051***								
				[0.013]								
…x(*FirmAge*)x(*ExtDep*)					-0.040***							
					[0.008]							
…x(*FirmAge*)x(*Q*)						-0.169**						
						[0.066]						
(TakeoverMkt)x***(***FirmAge*)x(*M&A*)							-0.045***					
							[0.015]					
…x(*FirmAge*)x(*ExtDep*)								-0.032***				
								[0.009]				
…x(*FirmAge*)x(*Q*)									-0.130**			
									[0.057]			
(AI)x***(***FirmAge*)x(*M&A*)										-0.037***		
										[0.012]		
…x(*FirmAge*)x(*ExtDep*)											-0.031**	
											[0.014]	
…x(*FirmAge*)x(*Q*)												-0.124*
												[0.066]
Pseudo R^2	0.103	0.103	0.104	0.103	0.103	0.103	0.103	0.103	0.104	0.103	0.103	0.104

Appendix

Table A1
Country characteristics

The table reports the country-level variables used in Tables 7 and 8. Data are reported for all countries that are covered by Amadeus in December 2006 and by Djankov et al. (2008). *InvProtect* is the anti–self-dealing indicator in Djankov et al. (2008). *FinDevelop* is the ratio of the stock market capitalization to GDP for 2006. *TakeoverMkt* is the number of attempted hostile takeovers as a percentage of traded companies between 2001 and 2006, based on SDC Platinum. We normalize each variable by using the sample mean and standard deviation on the basis of twenty-seven country observations. *AI* is the equal-weighted sum of the three standardized indicators.

Country	*InvProtect* Anti–self-dealing	*FinDevelop* Stock market capitalization/GDP (%)	*TakeoverMkt* Hostile takeovers (%)	*AI* Aggregate indicator
Austria	0.21	16.4	0.0	-0.82
Belgium	0.54	67.2	2.5	0.76
Bulgaria	0.65	5.5	0.0	-0.10
Croatia	0.25	16.5	1.6	-0.32
Czech Republic	0.33	20.2	0.0	-0.59
Denmark	0.46	58.6	0.0	-0.14
France	0.38	89.5	0.7	0.08
Germany	0.28	54.7	0.9	-0.22
Greece	0.22	91.4	0.6	-0.21
Hungary	0.18	24.0	0.0	-0.84
Ireland	0.79	67.7	2.8	1.28
Italy	0.42	52.8	1.1	0.05
Latvia	0.32	8.5	0.0	-0.68
Lithuania	0.36	12.8	0.0	-0.59
Luxembourg	0.28	144.6	1.9	0.56
Netherlands	0.20	131.7	1.5	0.23
Norway	0.42	39.7	1.6	0.14
Poland	0.29	16.7	0.0	-0.69
Portugal	0.44	46.2	2.1	0.36
Romania	0.44	5.5	0.0	-0.48
Russia	0.44	33.2	0.0	-0.32
Slovakia	0.29	5.3	0.0	-0.75
Spain	0.37	79.9	0.5	-0.02
Sweden	0.33	112.3	1.8	0.43
Switzerland	0.27	249.0	4.1	1.74
Ukraine	0.08	5.9	0.0	-1.12
UK	0.95	157.7	3.3	2.24
Avg.	0.38	59.8	1.0	0
SD	0.19	58.6	1.2	1

Table A2
Descriptive statistics for the *ALL FIRM* sample of twenty-seven countries

This table reports results for the *ALL FIRM* sample, i.e., all private and listed firms in the Amadeus database in December 2006 that meet the following requirements: firm status is active, according to the database; sales, assets, operating profit, incorporation year, and industry are reported; and net sales are at least €50 million. Firms incorporated in countries not covered by Djankov et al. (2008) are excluded. Also excluded are firms in Fama-French forty-eight industries with less than ten firms in total. *FirmAge* is measured in hundreds of years.

Country	Austria	Belgium	Bulgaria	Croatia	Czech R.	Denmark	France	Germany	Greece
Sample firms	39	1,499	14	87	311	1,127	4,801	2,189	319
Family firms	11	59	4	34	24	115	1,097	527	107
Median assets	91	60.8	74.2	84	69.1	77.6	77	105.2	97.9
Median sales	186.1	113.3	94.1	107	115.6	119.2	115.2	149.8	112.4
Median *FirmAge* (yrs.)	16	21	13	15	13	15	21	18	23

Country	Hungary	Ireland	Italy	Latvia	Lithuania	Luxemb.	Netherl.	Norway	Poland
Sample firms	175	122	2,716	13	16	7	1,373	979	133
Family firms	3	35	567	4	10	1	28	127	31
Median assets	52	91.2	84	22.1	44.4	77.4	92.2	86.7	59.3
Median sales	126.5	125.5	105.6	82.7	91.5	255.6	145.7	119.5	99.2
Median *FirmAge* (yrs.)	13	17	25	10	13	15	20	15	15

Country	Portugal	Romania	Russia	Slovakia	Spain	Sweden	Switzerl.	Ukraine	UK
Sample firms	350	155	507	50	1,039	1,568	219	272	7,604
Family firms	56	43	17	1	157	65	26	44	1,687
Median assets	101.1	62.8	81.3	19.4	87.1	80.8	337.1	79.5	87.4
Median sales	111.8	96.9	129.8	100.3	112.2	121.1	312.7	118.9	130.9
Median *FirmAge* (yrs.)	23.5	10	14	11.5	20	24	46	11.5	17